

Application No. 09/830,488

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In the claims:

This listing of claims will replace all prior versions and listings of claims in the application:

- 1 1. (Original) A system for producing customized audio data, comprising:
2 a source of an audio data product;
3 processing resources, coupled to the source of an audio data product, configured
4 to associate the audio data product with a customer hearing profile for use in production
5 of a customized audio data product.
- 1 2. (Original) The system of claim 1, wherein the customer hearing profile comprises
2 coefficients of a transfer function to transform the audio data product according a hearing
3 characteristic of a customer.
- 1 3. (Original) The system of claim 1, wherein the customer hearing profile comprises an
2 identifier of transfer function to transform the audio data product according a hearing
3 characteristic of a customer.
- 1 4. (Original) The system of claim 1, wherein the customer hearing profile comprises an
2 identifier of a transfer function and coefficients of the identified transfer function to
3 transform the audio data product according a hearing characteristic of a customer.
- 1 5. (Original) The system of claim 1, including a machine readable registry of customer
2 hearing profiles corresponding to registered customers of the audio data product in
3 communication with data processing resources, and further including resources for
4 reading, modifying and writing particular customer hearing profiles in the plurality.
- 1 6. (Original) The system of claim 1, wherein the customer hearing profile includes a
2 value indicating listening conditions in which the customized audio data product is to be
3 played.

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1 7. (Original) The system of claim 1, wherein the customer hearing profile includes a
2 value indicating a hearing characteristic of a customer for whom the customized audio
3 data product is to be played.

1 8. (Original) The system of claim 1, wherein the customer hearing profile includes a
2 specification of psycho-acoustic characteristics of a customer for whom the customized
3 audio data product is to be played.

1 9. (Original) The system of claim 1, wherein the customer hearing profile includes an
2 audiogram characterizing a customer for whom the customized audio data product is to
3 be played.

1 10. (Original) The system of claim 1, wherein the customer hearing profile includes
2 software defining a transfer function for producing the customized audio data product.

1 11. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the data processing resources include logic to accept data
3 concerning a customer for whom the customized audio data product is to be played, and
4 to produce a customer hearing profile for the plurality of customer hearing profiles in
5 response to the accepted data. 12. The system of claim 1, including a source of a
6 plurality of customer hearing profiles, and wherein the data processing resources include
7 a network interface, and logic to accept, via the network interface, data concerning a
8 customer for whom the customized audio data product is to be played, and to produce a
9 customer hearing profile for the plurality of customer hearing profiles in response to the
10 accepted data.

1 13. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the data processing resources include a network interface,
3 and logic to accept, via the network interface, data concerning a customer for whom the
4 customized audio data product is to be played, and to modify a customer hearing profile
5 in the plurality of customer hearing profiles in response to the accepted data.

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1 14. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the data processing resources include a network interface,
3 and an interface accessible to a user via the network interface to accept data concerning a
4 customer for whom the customized audio data product is to be played, and to produce a
5 customer hearing profile for the plurality of customer hearing profiles in response to the
6 accepted data.

1 15. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the data processing resources include a network interface,
3 and an interface accessible to a user via the network interface to accept data concerning a
4 customer for whom the customized audio data product is to be played, and to modify a
5 customer hearing profile in the plurality of customer hearing profiles in response to the
6 accepted data.

1 16. (Original) The system of claim 1, wherein the processing resources include a
2 network interface for connection to a data network, and the source of the audio data
3 product comprises the network interface.

1 17. (Original) The system of claim 1, wherein the processing resources include a
2 network interface for connection to a data network, and resources to receive the customer
3 hearing profile via the network interface.

1 18. (Original) The system of claim 1, wherein the audio data product comprises pre-
2 recorded audio tracks.

1 19. (Original) The system of claim 1, wherein the audio data product comprises pre-
2 recorded audio music tracks.

1 20. (Original) The system of claim 1, wherein the audio data product comprises live
2 audio music streams.

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- 1 21. (Original) The system of claim 1, wherein the audio data product comprises pre-
2 recorded audio voice tracks.
- 1 22. (Original) The system of claim 1, wherein the audio data product comprises live
2 audio voice streams.
- 1 23. (Original) The system of claim 1, wherein the audio data product comprises live
2 audio telephone data.
- 1 24. (Original) The system of claim 1, wherein the processing resources include a
2 network interface for connection to a data network, and user input comprises an interface
3 accessible via the network interface.
- 1 25. (Original) The system of claim 1, wherein the user input comprises tools by which a
2 user selects an instance of the encoded audio data product, and issues a request for the
3 selected instance.
- 1 26. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the user input comprises tools by which a user adds a
3 customer hearing profile to the plurality of customer hearing profiles.
- 1 27. (Original) The system of claim 1, including a source of a plurality of customer
2 hearing profiles, and wherein the user input comprises tools by which a user modifies a
3 particular customer hearing profile in the plurality of customer hearing profiles.
- 1 28. (Original) The system of claim 1, wherein the processing resources include logic to
2 produce information about billing for requested audio data products for customers.
- 1 29. (Original) The system of claim 1, wherein the audio data product comprises a
2 digitally encoded product.

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1 30. (Original) The system of claim 1, wherein the audio data product comprises an
2 analog encoded product.

1 31. (Original) The system of claim 1, wherein the audio data product comprises data
2 encoded according to a particular format suitable for playback by audio systems adapted
3 for the particular format, and the customized audio data product comprises data encoded
4 according to the particular format.

1 32. (Original) The system of claim 1, wherein the data processing resources include a
2 processor which transforms the audio data product to the customized audio data product
3 using the customer hearing profile, a network interface, and logic for transmitting the
4 customized audio data product to a remote location via the network interface.

1 33. (Original) The system of claim 1, wherein the data processing resources include a
2 network interface, and logic for transmitting the audio data product and at least a portion
3 of the customer hearing profile to a remote location via the network interface.

1 34. (Original) The system of claim 1, wherein the data processing resources include a
2 network interface, and logic for transmitting at least a portion of the customer hearing
3 profile to a remote location via the network interface for use in transforming the audio
4 data product.

1 35. (Original) The system of claim 1, wherein the data processing resources include a
2 processor which transforms the audio data product to the customized audio data product
3 using the customer hearing profile, a memory device to store data on a machine readable
4 medium, and logic for storing the customized audio data product on the machine readable
5 medium.

1 36. (Original) The system of claim 1, wherein the processing resources comprise a
2 processor coupled to a device for playing the customized audio data product.

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1 37. (Original) The system of claim 1, wherein the processing resources comprise a
2 processor coupled to a network, and resources for transmitting the customized audio data
3 product to the customer via the network.

1 38. (Original) The system of claim 1, wherein the data processing resources include an
2 interface for reading a hearing profile from a portable data storage device.

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1 111. (Original) A method for providing customized audio data products, comprising:
2 reading a particular audio data product;
3 associating a hearing profile with the particular audio data product;
4 modifying the particular audio data product according to the hearing profile to
5 produce a customized audio data product.

1 112. (Original) The method of claim 111, wherein the step of associating a hearing
2 profile with the particular audio data product includes retrieving the hearing profile from
3 a portable memory device.

1 113. (Original) The method of claim 111 including maintaining a registry of hearing
2 profiles, and the step of associating a hearing profile for the customer with the particular
3 audio data product includes retrieving the hearing profile from the registry.

1 114. (Original) The method of claim 113, including providing tools accessible via a
2 network for gathering information about hearing characteristics of customers, and
3 modifying hearing profiles in the registry in response to the information.

1 115. (Original) The method of claim 113, including providing tools accessible via a
2 network for gathering information about hearing characteristics of customers, and
3 modifying hearing profiles in the registry in response to the information according to an
4 optimization modeling process.

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1 116. (Original) The method of claim 111, wherein the particular audio data product
2 comprises pre-recorded audio tracks.

1 117. (Original) The method of claim 111, wherein the particular audio data product
2 comprises pre-recorded audio music tracks.

1 118. (Original) The method of claim 111, wherein the particular audio data product
2 comprises live audio music streams.

1 119. (Original) The method of claim 111, wherein the particular audio data product
2 comprises pre-recorded audio voice tracks.

1 120. (Original) The method of claim 111, wherein the particular audio data product
2 comprises live audio voice streams.

1 121. (Original) The method of claim 111, wherein the particular audio data product
2 comprises live audio telephone data.

1 122. (Original) The method of claim 111, including providing tools by which a user
2 selects an instance of the particular audio data product, and issues a request for the
3 selected instance.

1 123. (Original) The method of claim 111, including providing a source of a plurality of
2 customer hearing profiles, and tools by which a user adds a customer hearing profile to
3 the plurality of customer hearing profiles.

1 124. (Original) The method of claim 111, including providing a source of a plurality of
2 customer hearing profiles, and tools by which a user modifies a particular customer
3 hearing profile in the plurality of customer hearing profiles.

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1 125. (Original) The method of claim 111, wherein the particular audio data product
2 comprises a digitally encoded product.

1 126. (Original) The method of claim 111, wherein the particular audio data product
2 comprises an analog encoded product.

1 127. (Original) The method of claim 111, wherein the particular audio data product
2 comprises data encoded according to a particular format suitable for playback by audio
3 devices adapted for the particular format, and the customized audio data product
4 comprises data encoded according to the particular format.

1 128. (Original) The method of claim 111, wherein the hearing profile includes a value
2 indicating listening conditions in which the customized audio data product is to be
3 played.

1 129. (Original) The method of claim 111, wherein the hearing profile includes a value
2 indicating a hearing characteristic type of a customer for whom the customized audio
3 data product is to be played.

1 130. (Original) The method of claim 111, wherein the hearing profile includes a
2 specification of psycho-acoustic characteristics of a customer for whom the customized
3 audio data product is to be played.

1 131. (Original) The method of claim 111, wherein the hearing profile includes an
2 audiogram of a customer for whom the customized audio data product is to be played.

1 132. (Original) The method of claim 111, wherein the hearing profile includes software
2 defining a transfer function for producing the customized audio data product.

1 133. (Original) A device for producing customized audio data, comprising:
2 data storage storing an audio data product and

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3 a hearing profile of a customer for the audio data product; and
4 logic to produce a customized audio data product in response to the hearing
5 profile and the audio data product.

1 134. (Original) The device of claim 133, including:
2 an interface by which the customized audio data product is received from a
3 remote site.

1 135. (Original) The device of claim 133, including:
2 logic to store the customized audio data product on a machine readable medium.

1 136. (Original) The device of claim 133, wherein the customized audio data product
2 comprises at least a portion of the hearing profile, and the audio data product for
3 transformation according to the hearing profile at a remote site.

1 137. (Original) The device of claim 133, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product.

1 138. (Original) The device of claim 133, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product, and
3 a parameter used for decoding the transformation.

1 139. (Original) The device of claim 133, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product, and
3 a parameter associated with the customer used for decoding the transformation.

1 140. (Original) An article of manufacture comprising:
2 a data storage medium configured for connection to, and for disconnection from,
3 an audio playback device; and

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4 a customized audio data product stored in the data storage medium, the
5 customized audio data product comprising an audio data product customized in response
6 to a hearing profile of a customer.

1 141. (Original) The article of claim 140, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product, and
3 a parameter for identification of the customer.

1 142. (Original) The article of claim 140, wherein the customized audio data product
2 comprises at least a portion of the hearing profile, and the audio data product for
3 transformation according to the hearing profile.

1 143. (Original) The article of claim 140, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product.

1 144. (Original) The article of claim 140, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product, and
3 a parameter used for decoding the transformation.

1 145. (Original) The article of claim 140, wherein the customized audio data product
2 comprises a transformation according to the hearing profile of the audio data product; and
3 a parameter associated with the customer used for decoding the transformation.

1 146. (Original) An audio data playback device comprising:
2 a data processor;
3 a data storage medium, coupled to the data processor;
4 an audio transducer, coupled to the data processor; and
5 a customized audio data product stored in the data storage medium, the
6 customized audio data product comprising an audio data product customized using a
7 hearing profile of a customer.

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1 147. (Original) The audio data playback device of claim 146, wherein the audio
2 transducer comprises a speaker mounted on a headset.

1 148. (Original) The audio data playback device of claim 146, wherein the audio
2 transducer comprises stereo speakers mounted on a headset.

1 149. (Original) The audio data playback device of claim 146, wherein the customized
2 audio data product comprises the audio data product transformed according to the hearing
3 profile, and a parameter for identification of the customer.

1 150. (Original) The audio data playback device of claim 146, wherein the customized
2 audio data product comprises a transformation according to the hearing profile of the
3 audio data product, and a parameter associating the customized audio data product with
4 the customer, and the data processor includes decoding logic responsive to the parameter
5 for playing the customized audio data product.

1 151. (Original) The audio data playback device of claim 146, wherein the customized
2 audio data product comprises at least a portion of the hearing profile, and the audio data
3 product for transformation according to the hearing profile, and the data processor
4 includes decoding logic responsive to said at least a portion of the hearing profile for
5 playing the customized audio data product.

1 152. (Original) An audio testing device comprising:
2 a data processor;
3 a data storage medium, coupled to the data processor;
4 a communication port, coupled to the data processor;
5 an audio transducer, coupled to the data processor; and
6 at least a portion of a hearing test program stored in the data storage medium, the
7 hearing test program comprising routines for execution of a hearing test using the
8 communication port and the hearing test program to produce hearing profile data of a
9 customer.

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1 153. (Original) The audio testing device of claim 152, wherein the communication port
2 comprises a port for connection to an external data processing device providing a user
3 interface for the hearing test program.

1 154. (Original) The audio testing device of claim 152, wherein the audio transducer
2 comprises a speaker mounted on a headset.

1 155. (Original) The audio testing device of claim 152, wherein the audio transducer
2 comprises stereo speakers mounted on a headset.

1 156. (Original) The audio testing device of claim 152, including a port adapted to couple
2 a removable data storage device to the data processor, and resources for playing an audio
3 data product stored in the removable data storage device.

1 157. (Original) The audio testing device of claim 152, including a battery, and wherein
2 the data processor and audio transducer are coupled to the battery.

1 158. (Original) The audio testing device of claim 152, including a headset, and wherein
2 the data processor, data storage medium, communication port and audio transducer are
3 mounted on the headset.

1 159. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile comprises coefficients of a transfer function to transform an audio data product
3 according a hearing characteristic of a customer.

1 160. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile comprises an identifier of transfer function to transform an audio data product
3 according a hearing characteristic of a customer.

1 161. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile comprises an identifier of a transfer function and coefficients of the identified

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3 transfer function to transform an audio data product according a hearing characteristic of
4 a customer.

1 162. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile includes a value indicating listening conditions in which a customized audio data
3 product is to be played.

1 163. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile includes a value indicating a hearing characteristic of a customer for whom a
3 customized audio data product is to be played.

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1 164. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile includes a specification of psycho-acoustic characteristics of a customer for whom
3 a customized audio data product is to be played..

1 165. (Original) The audio testing device of claim 152, wherein the customer hearing
2 profile includes an audiogram characterizing a customer for whom a customized audio
3 data product is to be played.

1 166. The audio testing device of claim 152, wherein the customer hearing profile
2 includes software defining a transfer function for producing a customized audio data
3 product.

1 167. (Original) An audio testing and playback device comprising:
2 a data processor;
3 data memory coupled to the data processor;
4 a communication port, coupled to the data processor;
5 an audio transducer, coupled to the data processor;

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6 a hearing test program stored in the data memory, the hearing test program
7 comprising logic used for execution of a hearing test using the communication port to
8 produce hearing profile data for use in production of a hearing profile of a customer; and
9 a customized audio data product stored in the data memory, the customized audio
10 data product comprising an audio data product customized using the hearing profile.

1 168. (Original) The audio testing and playback device of claim 167, wherein the
2 communication port comprises a port for connection to an external data processing device
3 providing a user interface for the hearing test program.

1 169. (Original) The audio testing and playback device of claim 167, wherein the audio
2 transducer comprises a speaker mounted on a headset.

1 170. (Original) The audio testing and playback device of claim 167, wherein the audio
2 transducer comprises stereo speakers mounted on a headset.

1 171. (Original) The audio testing and playback device of claim 167, including a port
2 adapted to couple a removable data storage device to the data processor, and resources
3 for playing an audio data product stored in the removable data storage device.

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1 172. (Original) The audio testing and playback device of claim 167, including a battery,
2 and wherein the data processor and audio transducer are coupled to the battery..

1 173. (Original) The audio testing and playback device of claim 167, including a headset,
2 and wherein the data processor, data memory, communication port and audio transducer
3 are mounted on the headset.

1 174. (Original) A method for conducting a hearing test, comprising:
2 providing a headset having stored therein audio test software;
3 coupling the headset to a data processor having a user interface;

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- 4 executing a test using the audio test software and the user interface to develop a
- 5 hearing profile;
- 6 producing a customized audio data product using the hearing profile; and
- 7 playing the customized audio data product on the headset.

1 175. (Original) The method of claim 174, including storing the hearing profile on the
2 headset, and wherein the step of producing a customized audio data product comprises
3 processing an audio data product using the hearing profile stored in the headset.

1 176. (Original) The method of claim 174, including storing the hearing profile in a
2 remote site.

1 177. (Original) The method of claim 174, including producing the customized audio
2 data product in a remote site.

1 178. (Original) The method of claim 174, including storing the customized audio data
2 product on a machine readable medium, and coupling the machine readable medium to
3 the headset.

1 179. (Original) The method of claim 174, including storing the customized audio data
2 product on a portable data storage device, and coupling the portable data storage device
3 to the headset.

1 180. (Original) An article of manufacture comprising:
2 a data storage medium configured for connection to, and for disconnection from,
3 an audio playback device; and
4 a customer hearing profile stored in the data storage medium, the hearing profile
5 comprising data generated based on hearing characteristics of a particular customer.

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1 181. (Original) The article of claim 180, wherein the customer hearing profile comprises
2 coefficients of a transfer function to transform an audio data product according a hearing
3 characteristic of a customer.

1 182. (Original) The article of claim 180, wherein the customer hearing profile comprises
2 an identifier of a transfer function to transform an audio data product according a hearing
3 characteristic of a customer.

1 183. (Original) The article of claim 180, wherein the customer hearing profile comprises
2 an identifier of a transfer function and coefficients of the identified transfer function to
3 transform an audio data product according a hearing characteristic of a customer.

1 184. (Original) The article of claim 180, wherein the customer hearing profile includes a
2 value indicating listening conditions in which a customized audio data product is to be
3 played.

1 185. (Original) The article of claim 180, wherein the customer hearing profile includes a
2 value indicating a hearing characteristic of a customer for whom a customized audio data
3 product is to be played.

1 186. (Original) The article of claim 180, wherein the customer hearing profile includes a
2 specification of psycho-acoustic characteristics of a customer for whom a customized
3 audio data product is to be played.

1 187. (Original) The article of claim 180, wherein the customer hearing profile includes
2 an audiogram characterizing a customer for whom a customized audio data product is to
3 be played.

1 188. (Original) The article of claim 180, wherein the customer hearing profile includes
2 software defining a transfer function for producing a customized audio data product.

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